

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
IN-OFFICE REVIEW/BENEFICIAL USE FIELD REPORT

A. GENERAL INFORMATIONPermit No: 63-34062

Exam Date: 1/20/2016

1. Does this qualify for an in-office field exam (IDAPA 035.02.r)? X Y N
- Irrigation of 5 acres or less
 - Storage of up to 14.6 AF for stockwater purposes only
 - Any use other than irrigation or storage, if the combined diversion rate is 0.24 cfs or less
 - Other < >

2. Current Owner: Name: Brian and Catherine Reynolds
 Owner of Record Correct? X Y N
 Address of Record Correct? Y N
 If No: Address

Tax lot data shows the Reynoldss as the owners of the property.

3. Beneficial Use Fees have been paid: X Y N Receipt No: C0

4. **SOURCE** **TRIBUTARY**

Ground Waer

Method of Determination: Well Driller's Report, GIS, and Taxlot Data

Change in Source: Y X N

B. OVERLAP REVIEW

1. Other water rights with the same place of use: NO Overlap

Water Right No.	Source	Purpose of Use	Basis
New York Canal Company	Boise River	Irrigation	Decree

Comments: The only water rights that are a direct overlap belong to the New York Canal Company through the Bureau of Reclamation and Boise Board of Control. The property is also within the borders of Boise Kuna Irrigation district and United Water Idaho, but they don't appear to supply water to the property. There are numerous overlapping private rights for this area. There are 44 private water rights that overlap this place of use and point of diversion. A review of all 44 rights show that none of those rights are for the tax lot that this permit is associated with.

2. Other water rights with the same point of diversion: NO Overlap

Water Right No.	Source	Purpose of Use	Basis
NONE			

Comments: There are numerous overlapping private rights for this area. There are 44 private water rights that overlap this place of use and point of diversion. A review of all 44 rights show that none of those rights are for the tax lot that this permit is associated with. There are no other water rights on the well described in this permit.

C. DIVERSION AND DELIVERY SYSTEM**1. LOCATION OF POINT(S) OF DIVERSION:**

Source	Govt. Lot	¼	¼	¼	Sec.	Twp.	Rge.		County
Well			NE	SE	26	3N	1E	B.M.	ADA
								B.M.	
								B.M.	

Method of Determination: GIS and Tax Lot data.Change in POD? X N Amendment Required? X N**2. PLACE OF USE:** Use: Irrigation

TWP	RGE	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
3N	1E	26													D	D			
															0.7	0.1			0.8
Total Acres =																			

Method of Determination: GIS and Tax Lot Data The tax lot straddles the 40 acre tract lineChange in POU? X N Amendment Required? X N Delivery System Diagram Attached (required). Indicate all major components and distances between components.

Indicate weir size/pipe as applicable.

 X Aerial Photo Attached (required for irrigation of 10+ acres). Photo of Diversion and System Attached

4. Well or Diversion Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
UNKNOWN	Unknown				

*Code to correspond with No. on map and aerial photo

D. FLOW MEASUREMENTS

1.Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
NONE						

2. Measurements: No measurement is required for an in-house exam, but a theoretical calculation was used to determine if the diversion rate is reasonable.

E. FLOW CALCULATIONS X Additional Computation Sheets Attached

Measured Method:

A theoretical analysis shows that a diversion rate of 0.06 cfs is possible with a 2 Hp pump. The owner did not supply the Hp of the pump, so I am assuming this is the size of pump he used based on the lift and the pressure for this system.

Irrigation = 0.03 cfs X 0.8 acres of irrigation = 0.24 cfs (Please Note: A diversion rate of 0.03 cfs is still reasonable for this small of irrigation, so I am recommending 0.03 cfs. A diversion rate of 0.03 cfs is enough to run 3 to 4 sprinklers depending on size, so it is reasonable that they would need at least that amount of water to irrigate this size of yard and still use the yard.

Domestic = We generally allow up to 0.04 cfs for in-house use for a home. This permit limited them to 0.02 cfs, so that is the amount I am recommending

Theoretical Calculation = 0.06 cfs**Permit allowed = 0.05 cfs**

I am recommending a diversion rate of 0.03 cfs for irrigation and 0.02 cfs for domestic for a total of 0.05 cfs as was permitted. It appears as though this pump can deliver the 0.05 cfs applied for in the permit.

F. VOLUME CALCULATIONS

1. Volume Calculations for Irrigation:

$$V_{I.R.} = (\text{Acres Irrigated}) \times (\text{Irrigation Requirement}) = 0.8 \text{ acres} \times 4.5 = 3.6 \text{ af}$$

$$V_{D.R.} = [\text{Diversion Rate (cfs)}] \times (\text{Days in Irrigation season}) \times 1.9835 = 0.03 \times 260 \times 1.9835 = 15.5 \text{ af}$$

$$V = \text{Smaller of } V_{I.R.} \text{ and } V_{D.R.} = 3.6 \text{ af}$$

2. Volume Calculations for Other Uses:

This is a domestic use. According to processing memo #22, and Domestic use for in-house use can have up to 0.6 acre feet of annual water use when the yard irrigation is being covered by the irrigation component. I am recommending 0.6 af for the domestic use for this permit.

G. PURPOSE OF USEIrrigation X Y N # Stock Domestic # of Homes 1

Other: < >

Change in Purpose of Use? Y N Method of Determination: Taxlot data and conversations with owner.If Yes: From Use To Use Amount CFS AFA **H. NARRATIVE/REMARKS/COMMENTS**

This permit is qualifies for an in-house exam. The application for permit states that uses are domestic and irrigation. I did find a home on the tax lot and the yard irrigated. There does appear to be a cement pad north of the home that may not be irrigated, but I included this area, because I was unsure whether or not it was a cement pad or a garden area. There is another area that appears to have been a parking area in the north western corner of the tax lot, but it looks to have been used as a garden area in the 2015 aerial photo. Therefore, I found a total of 0.8 acres actually being irrigated for this property.

The permit application did not give the horsepower of the pump, but a theoretical analysis done using the lift from the well driller's report and an estimated system pressure suggests that this diversion rate can be met with a 2 Hp pump. A 2 Hp pump is a standard pump for domestic uses pumping water under similar conditions.

I recommend that condition 1 (046) be removed at licensing. Condition 2 (121) needs to be changed to condition 103. Condition 4 (065) was changed to condition X31, since the irrigation use is less than 1 acre. The remaining conditions on the permit should be carried forward to licensing. Conditions X59 and X60 will also need to be added at licensing to describe the place of use and point of diversion. This area has over 44 water right overlaps, so it is necessary to have this information on the license to ensure that future water right reviews can clearly identify the location of this permit.

Have conditions of permit approval been met? X Yes No

I. RECOMMENDATIONS

1. Recommended Amounts

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>DIVERSION RATE</u>	<u>ANNUAL VOLUME</u>
Domestic	01/01 to 12/31	0.02 CFS	0.6 AF
Irrigation	03/01 to 11/15	0.03 CFS	3.6 AF
<u>Totals:</u>		0.05 CFS	4.2 AF

2. Recommended Amendments

 Change P.D. as reflected above Add P.D. as reflected above None

 Change P.U. as reflected above Add P.U. as reflected above None

Other: < >

J. AUTHENTICATION – DANIEL A. NELSON – STAFF HYDROLOGIST

Field Examiner's Name Daniel A. Nelson Date 2-1-16

Reviewer _____ Date _____

SWNE

SENE

26

03N01E

NWSE

NESE

Permit 63-34062
By Dan Nelson

The place of use for the irrigation is bordered in Green, and the place of use for the domestic is bordered in Yellow. The Domestic place of use is the tax lot border. There does appear to be a cement pad north of the house in the middle of the yard. I included this as part of the irrigation use, because I was not sure exactly what it is.

THEORETICAL HORSEPOWER EQUATION WORKSHEET (cjh 1/92)

Water Right No.: 63-34062
 Reviewer: Dan Nelson
 Date of Review: 2/1/2016

P/D No.:

PUMP HORSEPOWER
 BOOSTER HORSEPOWER

PUMPING LEVEL

DISCHARGE PRESSURE

RATE OF FLOW (cfs)

Scenario 1
1
0
92
50
0.03
13

Scenario 2
2
0
92
50
0.06
27

Scenario 3
3
0
92
50
0.09
40

The above calculates the formula =

$$Q = \frac{8.8 * (\text{Efficiency}) * \text{hp}}{\text{depth to water} + 2.31 * (\text{psi}) + \text{friction}}$$

Assumptions: %70 efficiency.
 No Friction

Examiners Notes:

The well log shows a static water level of 82 feet, so I estimated a standard drawdown of 10 feet for a small pump system for a total of 92 feet of lift. I used an average pressure of 50 psi, since most domestic systems operate between 40 and 60 psi. Using the above theoretical calculations, I determined that 0.06 cfs could be diverted using a 2 Hp well pump. This sounds reasonable for a single domestic system. The permit allowed up to 0.05 cfs, so it reasonable to allow the full permitted amount of 0.05 cfs.

IDAHO DEPARTMENT OF WATER RESOURCES WELL DRILLER'S REPORT

1. WELL TAG NO. D 0068839

Drilling Permit No. 968536874593

Water right or injection well # _____

2. OWNER: Brian Reynolds

Name Brian Reynolds

Address 9350 W Bienapfl

City Boise State ID Zip 83709

3. WELL LOCATION:

Twp. 3 North ☒ or South ☐ Rge. 1 East ☒ or West ☐

Sec. 26 10 acres 1/4 NE 1/4 SE 1/4 160 acres

Gov't Lot _____ County Ada

Lat. 43 34.003 (Deg. and Decimal minutes)

Long. 116 17.946 (Deg. and Decimal minutes)

Address of Well Site 9350 W Bienapfl

(Give at least name of road + distance to Road or Landmark) City Boise

Lot _____ Blk. _____ Sub. Name _____

4. USE:

☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation ☐ Thermal ☐ Injection
☐ Other _____

5. TYPE OF WORK:

☐ New well ☒ Replacement well ☐ Modify existing well
☐ Abandonment ☐ Other _____

6. DRILL METHOD:

☒ Air Rotary ☐ Mud Rotary ☐ Cable ☐ Other _____

7. SEALING PROCEDURES:

Seal material	From (ft)	To (ft)	Quantity (lbs or ft ³)	Placement method/procedure
bentonite	0	44	1300lbs	pour

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/Schedule	Material	Casing	Liner	Threaded	Welded
6"	+1'	191'	.250	steel	☒	☐	☐	☒
5"	188'	193'	.250	steel	☒	☐	☐	☒

Was drive shoe used? ☒ Y ☐ N Shoe Depth(s) 191'

9. PERFORATIONS/SCREENS:

Perforations ☐ Y ☒ N Method _____

Manufactured screen ☒ Y ☐ N Type Johnson

Method of installation set

From (ft)	To (ft)	Slot size	Number/ft	Diameter (nominal)	Material	Gauge or Schedule
193'	198'	16	---	5"	stainless	

Length of Headpipe 5' Length of Tailpipe _____

Packer ☒ Y ☐ N Type double k

10. FILTER PACK:

Filter Material	From (ft)	To (ft)	Quantity (lbs or ft ³)	Placement method
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11. FLOWING ARTESIAN:

Flowing Artesian? ☐ Y ☒ N Artesian Pressure (PSIG) _____

Describe control device _____

12. STATIC WATER LEVEL and WELL TESTS:

Depth first water encountered (ft) 82' Static water level (ft) 82'

Water temp. (°F) 52.5 Bottom hole temp. (°F) _____

Describe access port well cap

Well test:

Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)
	60 gpm	60

Test method:

Pump	Ballor	Air	Flowing artesian
☐	☐	☒	☐

Water quality test or comments: _____

13. LITHOLOGIC LOG and/or repairs or abandonment:

Bore Dia. (in)	From (ft)	To (ft)	Remarks, lithology or description of repairs or abandonment, water temp.	Water	
				Y	N
10	0	2	topsoil		X
	2	7	hard pan		X
	7	39	basalt		X
	39	44	sandy clay tan		X
6	44	104	gravel, sand	X	
	104	113	sandy clay		X
	113	121	gravel sand	X	
	121	137	tan clay		X
	137	174	brown sand gravel	X	
	174	176	tan clay		X
	176	180	white sand	X	
	180	183	tan clay		X
	183	187	brown sand	X	
	187	192	tan clay		X
	192	198	sand	X	

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MAR 16 2015

WATER RESOURCES
WESTERN REGION

Completed Depth (Measurable): 198'

Date Started: Feb 26, 2015

Date Completed: Mar 3, 2015

14. DRILLER'S CERTIFICATION:

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Coonse Well Drilling Co. No. 409

*Principal Driller [Signature] Date Mar 5, 2015

*Driller [Signature] Date Mar 5, 2015

*Operator II _____ Date _____

Operator I _____ Date _____

* Signature of Principal Driller and rig operator are required.